

In the Claims

WHAT IS CLAIMED IS:

Claims 1 - 15. (Cancelled)

16. (Currently amended) A process for producing a zeolite of the ZSM-12 type ~~as claimed in one of claims 1 to 7, in which~~
comprising

preparing a synthesis gel ~~is produced which comprises, in an~~
aqueous solution or suspension, which comprises

~~a1)~~ an aluminum source;

~~a2)~~ ~~precipitated silica as a silicon source,~~ comprising
precipitated silica;

~~a3)~~ TEA⁺ as a template; and

~~a4)~~ an alkali metal ~~and/or~~ alkaline earth metal ion source
M having ~~the~~ a valency of n₁,

~~a5)~~ wherein the molar H₂O:SiO₂ ratio of the gel is ~~set~~
within the range from 5 to 15,

crystallizing the synthesis gel ~~is crystallized~~ under
hydrothermal conditions, while being stirred, so as to
obtain a solid;

removing the solid ~~is removed from the solution,~~ and
utilizing the solid ~~is optionally washed and dried to~~
produce the ZSM-12 type zeolite.

17. (Currently amended) The process as claimed in claim 16, characterized in that the molar $M_{n/2}O:SiO_2$ ratio in the synthesis gel ~~composition~~ is ~~established~~ within the range from 0.01 to 0.045.

18. (Currently amended) The process as claimed in claim 16 ~~or 17~~, characterized in that the molar SiO_2/Al_2O_3 ratio is ~~established~~ within ~~the~~ a range from 50 to 150.

19. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 18~~, characterized in that the crystallization of the synthesis gel is carried out at temperatures of from about 120 to 200°C. ~~, in particular from about 140 to 180°C.~~

20. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 19~~, characterized in that the solid is washed with demineralized water until the washing water has an electrical conductivity of less than 100 $\mu S/cm$.

21. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 21~~, characterized in that the crystallization time is from about 50 to 500 h. ~~, in particular from about 100 to 250 h.~~

22. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 21~~, characterized in that the solid, ~~after the drying,~~ is washed, dried, comminuted, ~~especially granulated or ground~~ and calcined.

23. (Currently amended) The process as claimed in claim 22, characterized in that the calcination is carried out at a temperature of from 400 to 700°C, ~~preferably from 500 to 600°C,~~ for a period of from 3 to 12 h., ~~preferably from 3 to 6 h.~~

24. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 23~~, characterized in that exchangeable cations present in the zeolite of the ZSM-12 type are exchanged by treating with an aqueous solution of an ammonium compound or of an acid, and the solid obtained after the ion exchange is washed, dried and subsequently calcined.

25. (Currently amended) The process as claimed in ~~one of claims~~ claim 16 ~~to 24~~, characterized in that the zeolite of the ZSM-12 type is shaped ~~to~~ into a molding.

26. (Currently amended) The process as claimed in claim 25, characterized in that a binder is added to the zeolite of

molded product, ~~preferably~~ in an amount ~~of~~ from 10 to 90% by weight, ~~in particular from 20 to 70% by weight~~, based on the total weight of the ~~catalyst~~ molded product.

27. (Currently amended) The process as claimed in ~~one of~~ ~~claims~~ claim 25 ~~or 26~~, characterized in that the ~~molding is~~ ~~laden with~~ molded product contains at least one transition group metal.

28. (Currently amended) The process as claimed in claim 27, characterized in that the transition group metal ~~is~~ comprises a noble metal, ~~especially platinum~~.

Claims 29. through 34. (Cancelled)

35. (New) A zeolite of the ZSM-12 type which has a primary crystal size of $\leq 0.1 \mu\text{m}$; and a specific volume, determined by mercury porosimetry at a maximum pressure of 4000 bar, of 30-200 mm^3/g with a pore radius range of 4-10 nm.

36. (New) The zeolite as claimed in claim 35, characterized in that the zeolite has a specific volume, determined by nitrogen porosimetry, in a pore radius range of 3-20 nm, of 0.05-0.40 cm^3/g .

37. (New) The zeolite as claimed in claim 35, characterized with a molar $\text{SiO}_2/\text{Al}_2\text{O}_3$ ratio of from about 50 to 150.

38. (New) The zeolite as claimed in claim 35, characterized with a molar $\text{M}_{2/n}\text{O}:\text{SiO}_2$ ratio of from 0.01 to 0.045.

39. (New) The zeolite as claimed in claim 35, characterized wherein the primary crystals have been combined in agglomerates in a proportion of at least 30%.

40. (New) The zeolite as claimed in claim 35, characterized in that the primary crystals have a mean diameter of from about 10 to 70 nm.

41. (New) The zeolite as claimed in claim 39, characterized in that the agglomerates have cavities accessible from their surface or interstices between the primary crystals.

42. (New) A catalyst for the conversion of organic compounds comprising the zeolite of claim 35.

43. (New) The catalyst as claimed in claim 42, characterized in that it is in lump form.

44. (New) The catalyst as claimed in claim 42, further

comprising a binder in an amount of from 10 to 90% by weight, based on the total weight of the catalyst.

45. (New) The catalyst as claimed in claim 42, characterized in that the catalyst contains at least one catalytically active component.

46. (New) The catalyst as claimed in claim 45, characterized in that the at least one catalytically active component comprises a transition group metal.

47. (New) The catalyst as claimed in claim 46, characterized in that the transition group metal comprises a noble metal.

48. (New) The catalyst as claimed in claim 47, characterized in that the noble metal comprises platinum.

49. (New) The catalyst as claimed in claims 45, characterized in that the catalytically active component comprises from 0.01 to 40% by weight of the catalyst based on the total weight of the catalyst.

50. (New) A process for converting organic compounds comprising passing an organic feed stream over or through a catalyst bed comprising the ZSM-12 type catalyst of claim 42.

51. (New) A process for hydroisomerization of higher paraffins having a carbon number greater than 5 carbon atoms, comprising passing a feed stream containing higher paraffins over through a catalyst bed comprising the ZSM-12 type catalyst of claim 42.

52. (New) The process of claim 51 wherein the higher paraffin comprised n-octane.

53. (New) The process of claim 50 wherein the organic compounds comprise aromatics.

54. (New) The process of claim 51 wherein the hydroisomerization process is carried out in the presence of hydrogen at a temperature below 290°C.

55. (New) The process of claim 51 wherein the hydroisomerization process is carried out at a pressure of 1 to 50 bar at a liquid hourly space velocity (LHSV) of from 0.1 to 10 l per hour.

56. (New) A process for reforming utilizing the zeolite catalyst of claim 42.

57. (New) A process for increasing the flowability of gas oils utilizing the catalyst of claim 42.

58. (New) A process for catalytic or hydrogenating cracking and oligomerization or polymerization of olefinic or acetylenic hydrocarbons utilizing the catalyst of claim 42.

59. (New) A process for alkylation utilizing the catalyst of claim 42.

60. (New) A process for dehydrogenation and hydrogenation of organic compounds utilizing the catalyst of claim 42.

61. (New) A process for the hydration or dehydration of organic compounds utilizing the catalyst of claim 42.

62. (New) A process for the desulfurization of organic compounds utilizing the catalyst of claim 42.

63. (New) A process for the conversion of alcohols and ethers to hydrocarbons and the conversion of paraffins or olefins to aromatics utilizing the catalyst of claim 42.

Discussion of Claims

The original claims, as filed, contained a variety of types of claims, all based on the discovery of a particular type of ZSM-12 zeolite and a process of manufacture of that zeolite. Each of the claims of the application has been amended to conform to U.S. patent practice without adding any new subject matter.

Original Claims 1 through 15, which claimed the zeolite or the zeolite used as a catalyst, have been cancelled and are rewritten as new Claims 35 - 49. Claims 16 - 28, which claim processes for the production of the zeolite, have been amended and are retained in this application. Claims 29 - 34 have been cancelled. Finally, Claims 50 through 63 claim processes of use of the zeolite, as claimed in Claim 42.

All of the claims are based on the claim language of the claims as originally filed in the PCT application WO 2004/087315 and the specification of that application. No new subject matter has been introduced in any of the claims.